

SOx RECLAIM Proposed Amended Regulation XX



Working Group Meeting

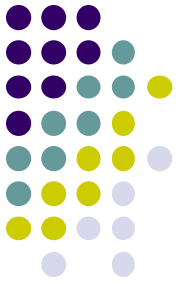
SCAQMD

December 15, 2009

Outline Presentation



- **Overview of Rule Development Process**
- **Staff Proposal and RTC Reductions Methodology**
- **Main Issues**



Overview

Background



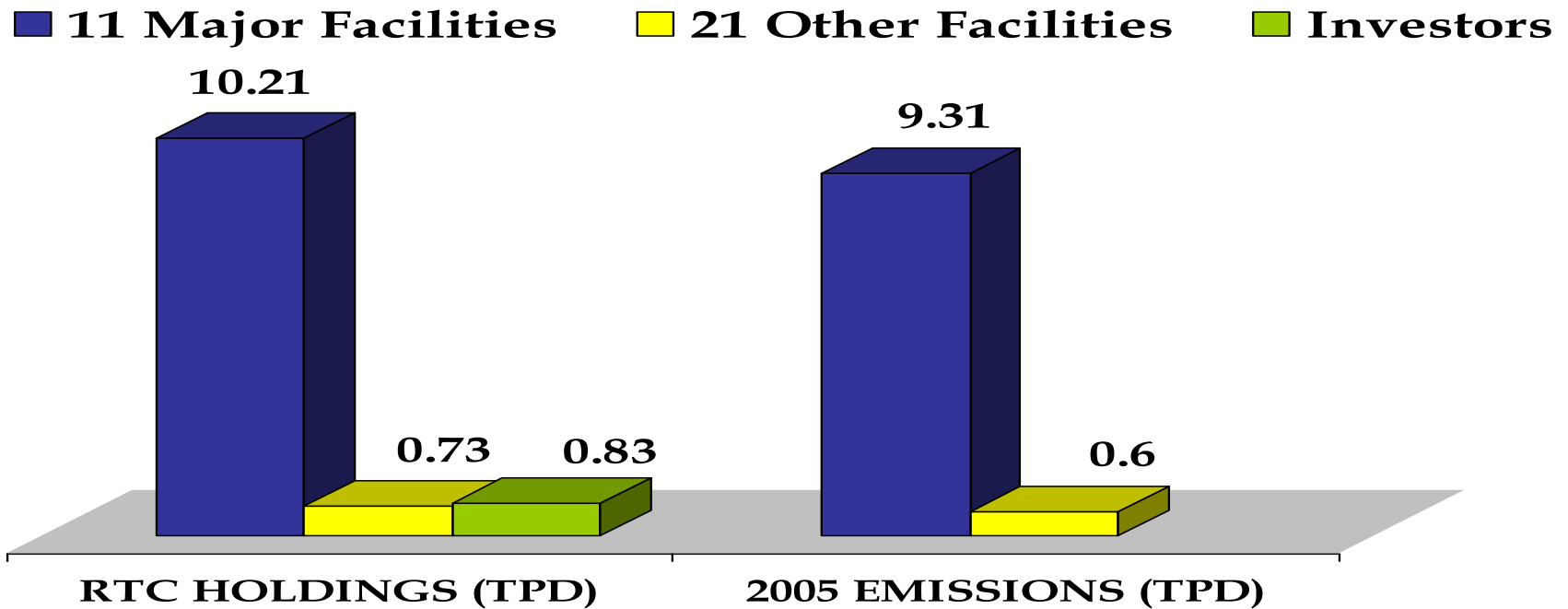
- **Cap-and-trade program since 1994**
- **30+ facilities; 51% of total stationary source inventory**
- **Total RTC holdings reduced: 29.9 → 11.7 tons per day (66% reduction)**
- **Total actual emissions reduced: 19.8 → 10.3 tons per day (48% reduction)**
- **RTC price(2008): \$1,474/ton**
- **Number of trades(2008): 58/year (33 @ \$cost & 25 @ no-cost)**



Legal Requirements

- **State Law Requirements**
 - **Command and control equivalency**
 - **Periodic BARCT reassessments**
- **SIP Commitment**
 - **2007 AQMP: Minimum 3 tons per day reductions by 2014**
- **Other Potential Drivers to Consider**
 - **Federal 24 Hour**
 - **EPA Efforts To Tighten Standard**
 - **More Stringent State Standards**

Market Participants

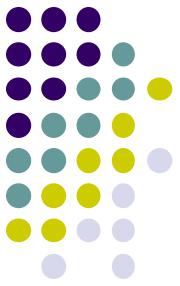


- Refineries (6, with 1 at 2 Locations)
- BP Coke Calciner
- Rhodia (Acid Manufacturing)
- Owens Brockway (Glass Manufacturer)
- California Portland Cement

Rule Development Process

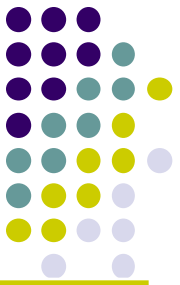


- **Started in February 2008**
- **Multiple Stakeholders Meetings**
- **Preliminary Staff Report - April 2008**
- **Public Workshop, CEQA Notice of Preparation & Draft Staff Report - June 2009**
- **Numerous Meetings with Stakeholders**
- **Three Stationary Source Committee Meetings**
- **One Refinery Source Committee Meetings – December 2009**



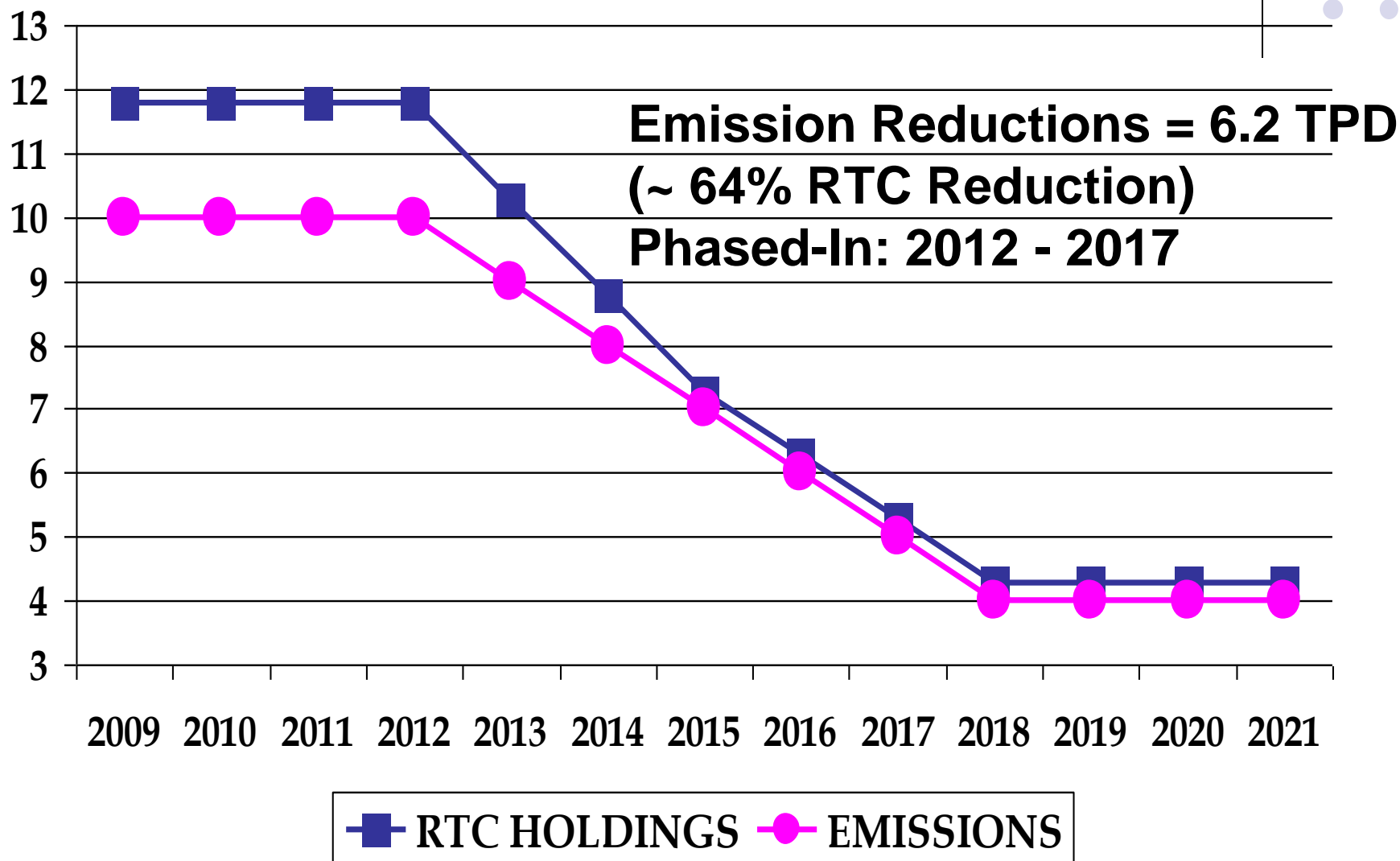
Staff's Proposal & R7C Reduction Methodology

Staff Proposal

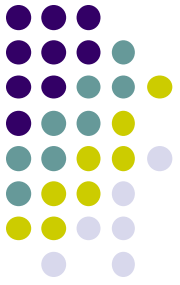


	Tier I (1993 BARCT for Year 2000)	New BARCT	Percent Reduction from Tier I	Cost Effectiveness
FCCUs	13.7 lbs/Mbarrels feed	5 ppmv 3.25 lbs/Mbarrels feed	80%	\$20 K per ton
SRU/TGs	Reported Value Avg. 9.03 lbs/hour	5 ppmv 5.28 lbs/hour	42%	\$26 K per ton
Boilers Heaters	6.76 lbs/mmscft	40 ppmv 6.76 lbs/mmscft	0%	Not applicable
Sulfuric Acid	Reported Value Avg. 5.08 lbs/ton	10 ppmv 0.14 lbs/ton acid	97%	\$2 K per ton
Coke	Reported Value Avg. 2.47 lbs/ton	10 ppmv 0.11 lbs/ton coke	96%	\$10 K per ton
Container Glass	Reported Value Avg. 2.51 lbs/ton	5 ppmv 0.03 lbs/ton glass	98%	\$5 K per ton
Cement Kiln	Reported Value Avg. 0.05 lbs/ton	5 ppmv 0.04 lbs/ton clinker	20%	\$19 K per ton

Staff Proposal (Cont.)



Staff Proposal (Cont.)



- **Net Investment (Present Value for 25 Years)**
= \$745 Million
- **Weighted Average Cost Effectiveness**
= \$13K Per Ton SOx Reduced
(Range: \$2K - \$47K Per Ton SOx Reduced)
- **CEQA Alternatives: 3 TPD - 6.2 TPD Reductions**

RTC Reductions Methodology



- **Consistent with 2005 NOx Methodology As Requested**

**Projected 2014 Emissions at BARCT Levels =
(1997 Baseline x Growth Factor) x BARCT Adj. Factor**

**RTC Reductions in 2014 = RTC Holdings – (1.1 x
Projected 2014 Emissions at BARCT Levels)**

where:

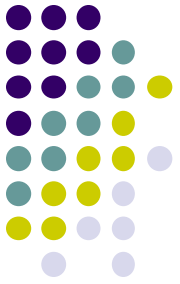
1997 Baseline = Actual Emissions in 1997

Growth Factor = SCAG Growth Factor from 1997–2014

BARCT Adj. Factor = Proposed New BARCT/Start Emission Factor

ERC Holdings = 11.76 Tons per Day

1.1 Adjustment Factor = 10% Compliance Margin



Main Issues

BARCT Determination



Issues

- **Cost**
- **Energy**
- **Other Environmental Impacts (i.e., Water)**

Staff Response

- **Based largely on Consultants' recommendations and verified by staff**
- **Remove facility-specific controls C/E exceeding \$50,000/ton. Reduce total compliance costs by 25%.**
- **Extend implementation period to spread costs**
- **More cost-effective to address PM2.5 2014, 2020 standards**

BARCT Determination (Cont.)



- Water impacts occur. Water suppliers can meet demand. Recycled water & well water available

Facility	Baseline (Million Gals/Day)	Increase (Million Gals/Day)	% Increase
Refinery 1	2	0.04	2%
Refinery 2	9	0.2	2%
Refinery 3	10	0.2	2%
Refinery 4	6	0.06	1%
Refinery 5*	9	0.02	<1%
Refinery 6	12	0.2	2%
Sulfuric Acid	0.7	0.02	3%
Coke	1	0.04	4%
Glass	0.1	0.06	48%
Cement	3	0.1	3%
Total	53	1	2%

BARCT Determination (Cont.)



- Small increase in wastewater discharge.
- No need to revise discharge permits.

Facility	Discharge Limit (GPM)	Current Discharge (GPM)	Increase (GPM)	% Increase
Refinery 1	764 - 1,000	903	15	2%
Refinery 2	7,500 - 12,200	3,000	40	<1%
Refinery 3	6,000 - 16,000	5,000	36	<1%
Refinery 4	10,000	2,200	22	<1%
Refinery 5*	5,000	1,400 - 2,000	14	<1%
Refinery 6	5,200 - 8,000	4,000	51	1%
Sulf. Acid	425	175 - 387	8	2%
Coke	125	65	11	9%
Glass	Not Reported	250	9	----
Cement	No Limit	Evaporation Pond	Small	Small
Total	35,000 - 53,000	17,000 - 18,000	206	<1%

Market Viability



Issues

- Not enough trading partners
- Competitiveness issues
- Ability of additional controls beyond BARCT limited
- Uneven distribution of RTC holdings

Staff Response

- C & C equivalency requirement supersedes market viability concerns
- Return portion of reductions to facilities as compliance margin
- Establish a set-aside, non-tradable reserve
- SIP submittal for Phase I reductions only
- Facility cap still better than C&C

Shaving Methodology



Issues

- Facilities with no equipment subject to new BARCT
- Limited ability to buy RTCs from large facilities

Staff Response

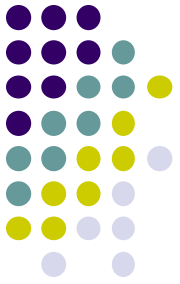
- Shaving methodologies under consideration for facilities with no equipment subject to new BARCT
 - Alternative percent shave
 - Exemption
- Developing SOx reduction protocols (i.e., PR2512)

Proposal for Alternate Percent Shave



- Shave applied to 11 major facilities and investors
- For the 21 remaining facilities:
 - Not shave RTC holdings below initial allocation
 - Shave RTC holdings portion above initial allocation
- Based on RTC holdings records as of 8/31/09
- Preliminary results

RTC Holdings (TPD)	11 major	21 others	Investors	Non-shave	Total
Start year 2012	10.21	0.05	0.83	0.68	11.77
Year 2018 & beyond	3.31	0.02	0.27	0.68	4.27
% Reduction	67.5%	4%	67.5%	0%	64%



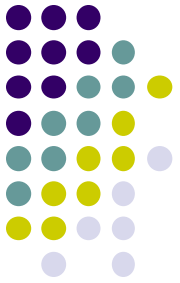
Schedule

Next Steps



- Continue to Meet with Stakeholders
- CEQA, Socio-Economic & Market Analyses
- **January 2010 Pre-Hearing**
 - Revised Draft Staff Report
- **Refinery Committee Meetings**
- **April 2010 Governing Board Hearing**

Market Analysis



- Planning to Hire Consultant
- Seeking Input on Questions to Ask & Consult

Contacts



- For Rule Questions & Comments, Contact:
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